

ODP-81-041

21 JAN 1981

MEMORANDUM FOR: Chief, Information Management Staff, DDO

FROM : Bruce T. Johnson
Director of Data Processing, DDA

SUBJECT : ALLSTAR/Delta Data 7260T Interface

REFERENCE : Memorandum for D/ODP from C/IMS, dated
12 August 1980, Subject: Requirement
to Develop an ALLSTAR Interface for the
Delta Data 7260T Terminal

1. The original plan to meet the requirements identified in above reference was to modify the Delta Data 7260T terminal with a program to emulate 3277 CRT terminals. We have determined that this is not the best approach. To meet the requirement, Systems Programming Division, ODP will be modifying host software to allow the use of a standard 7260T terminal. Our plans call for final completion of this project by March 20, 1981. At this time we will deliver a production system to you for use in your system.

2. I have attached the project proposal, "3270 Emulation Using the Delta Data 7260T," that was developed for this task. It specifies the detail implementation of the new software and it might be of interest to your technical people.

/s/ Bruce T. Johnson

Bruce T. Johnson

Attachment:
As stated

Distribution:

Orig - Addressee w/att
1 - D/ODP w/att
1 - DD/P/ODP w/att
1 - C/SPD/P/ODP w/att
5 - Chronos w/o att

25X1 ED/P/ODPHS [REDACTED] 13 Jan 81

3270 EMULATION
USING THE
DELTA DATA 7260T

A PROJECT PROPOSAL
BY
ODP/SPD
22 DECEMBER, 1980

3270 EMULATION USING THE DELTA DATA 7260T

PREFACE

This document is presented as a response to a request by the DDO/IMS(1) for interfacing the DELTA DATA 7260T terminal with the ALLSTAR system via emulation software.

Presently the primary device used for video output in the ALLSTAR system is the IBM 3277. ALLSTAR uses the IBM teleprocessing monitor CICS, which is designed to use the 3270 family of hardware. One of the functional areas of CICS is BASIC MAPPING SUPPORT. BMS is a high level software interface that allows applications programmers to define video displays and request input/output services. Because of the large number of video displays (alias MAPs) currently used by ALLSTAR, it is necessary to provide the DDO/SG with an alternative of using the existing applications on video devices compatible with the needs of the user community. Two devices were proposed to the DDO/SG, and their users. One was the IBM 3275, a member of the 3270 family, for use as a remote bisynchronous video terminal and the second was the new agency standard DELTA DATA 7260T which runs in asynchronous mode. Because the DDO/SG has extensive plans for the DELTA DATA based on its broad range of features, the decision was made to develop software within ODP/SPD to emulate 3270 mapping support as a part of the transition to full native mode use of the 7260. The details of the emulation software are outlined in this document.

(1) dated 12 August, 1980.

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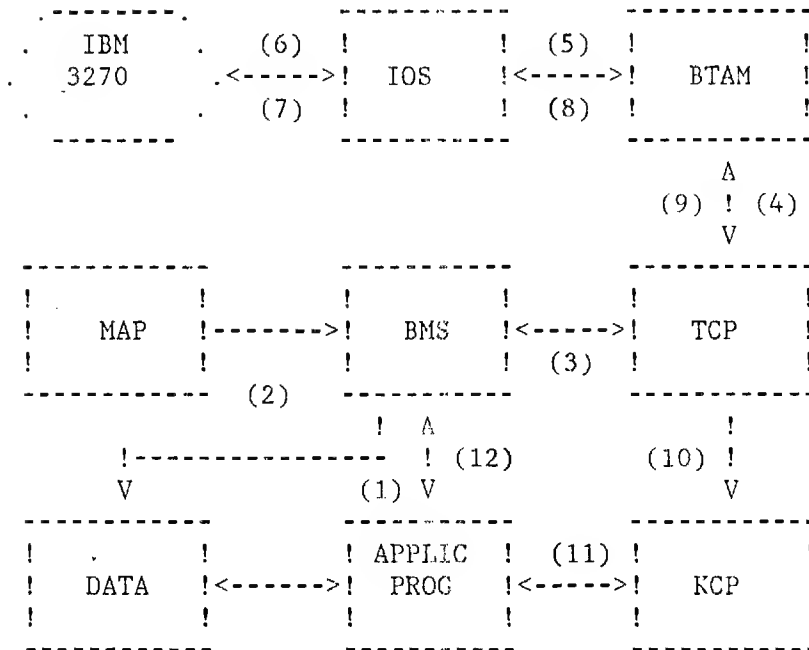
I.

INTRODUCTION

Based upon a request from the DDO/IMS, ODP/SPD is responding with a plan for development of an emulation software system to allow applications written for the IBM 3270 hardware family under CICS, to use the agency standard DELTA DATA 7260T terminal. In order that SPD may meet the March 1981 requirement date, it is necessary to use as many available tools as possible to expedite the product delivery. Over the years, SPD has developed software to interface unsupported teleprocessing devices, such as CRT'S and printers, to host operating systems, such as VM and MVS.

By combining the BTAM/CAM interface with the existing CICS software in ALLSTAR, SPD can provide a base for insertion of 3270 emulation logic. The following sections will describe the architecture and methodology for this project.

II. CURRENT CICS TERMINAL CONTROL AND BASIC MAPPING
SUPPORT PROCESSING FLOW



OUTPUT

1. Application program requests Basic Mapping Support to take data from a work area and merge it with a previously defined Map for output to an IBM 3270.
2. BMS takes the Map which was previously assembled from macro definitions describing display data by position, size, and video attribute, and merges it with the variable data, to produce a 3270 data stream. The data stream contains all the hardware control characters necessary to format the display as requested.
3. BMS calls the TERMINAL CONTROL PROGRAM to write the 3270 data stream to the device.
4. TCP calls BTAM for output service.
5. BTAM issues a supervisor call for the INPUT/OUTPUT SUPERVISOR

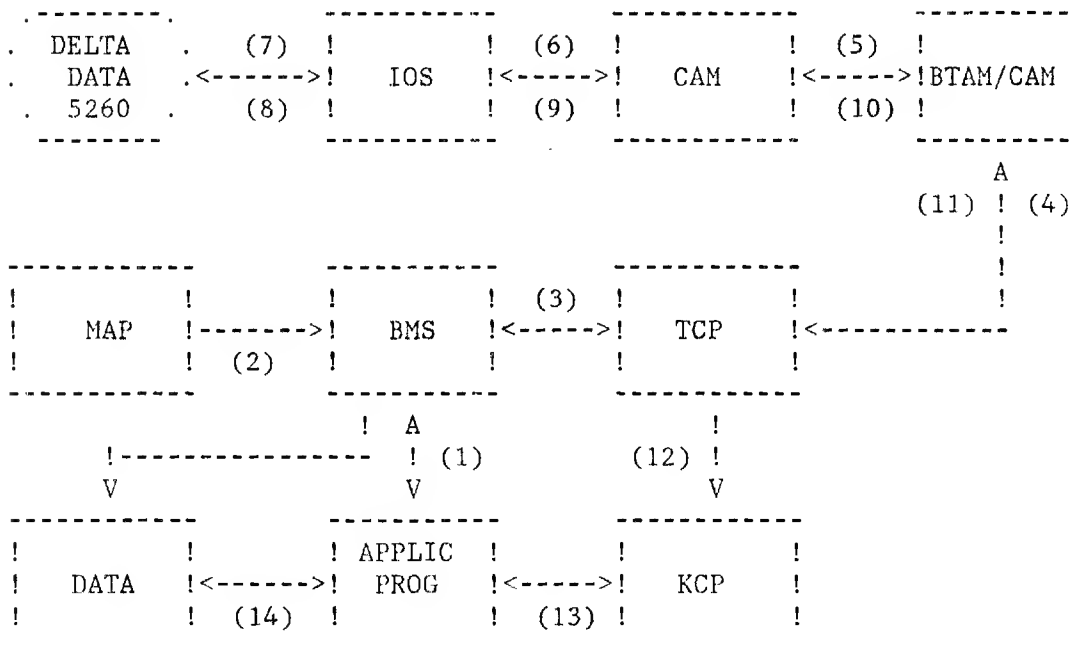
to write the data stream to the 3270.

6. IOS issues a START I/O to the device.

INPUT

7. The user depresses the enter key on the 3270 and a hardware interrupt is recognized.
8. IOS posts BTAM that the I/O has occurred.
9. BTAM posts TCP.
10. TCP tells TASK CONTROL PROGRAM that the application may be dispatched.
11. KCP dispatches the application program.
12. The application program calls BMS to remove the 3270 hardware control characters and place a length before each data field.

III. CURRENT BTAM/CAM INTERFACE PROCESSING FLOW



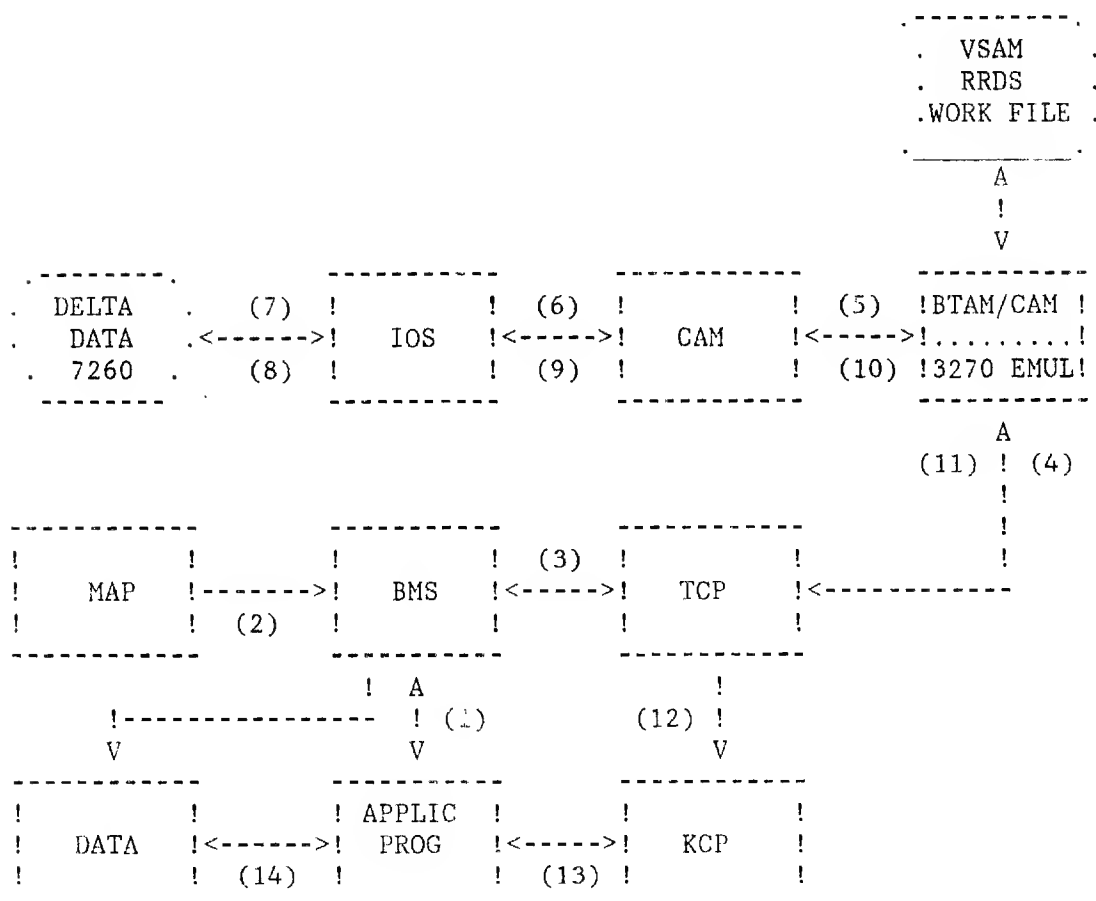
OUTPUT

- 1.,2.,3. Unchanged from normal CICS processing.
4. During the initialization of CICS the address of the BTAM module is replaced with that of the BTAM/CAM interface. Therefore TCP really calls BTAM/CAM.
5. BTAM/CAM validates the data stream which has been formatted for a TTY device. It then supplies the required parameters for CAM processing and calls CAM for output to the 5260.
6. CAM requests output services from IOS by issuing a supervisor call.
7. IOS issues a SIO to the device.

INPUT

- 8.,9.,10. Input processing is the same as in section II.
11. BTAM/CAM examines the input data to determine whether the user wishes to continue or terminate the session. If the user is to continue then BTAM/CAM posts TCP that a read has completed. If termination is requested CAM is called to close and the terminal is disconnected.
12. TCP requests KCP to dispatch the application.
13. KCP dispatches the application.
14. The application program processes the data.

IV. PROPOSED 3270 EMULATION ARCHITECTURE



As in the previous two sections the structure of CICS software has been kept as original as possible. Modifications for unsupported terminals (ie DELTA DATA 5260) have been made in the form of programs written under or along side of CICS. It is our intent to follow similar guidelines using the available ALLSTAR system and incorporate the functions of a modified BTAM/CAM interface to achieve our goal of 3270 emulation using the agency standard DELTA DATA 7260 terminal.

V. REQUIREMENTS AND SCHEDULE FOR DEVELOPMENT

There are three areas which must be developed or modified in order to complete this project. First, adapt BTAM/CAM software, as used in NIPS, to run under ALLSTAR. Second, develop code within BTAM/CAM to convert 3270 data streams to CAM CONTROL LANGUAGE format. Third, develop an enhanced version of CAM to communicate with the DELTA DATA 7260 in a native fashion under MVS.

DELIVERY DATE: 20 MARCH, 1981

BTAM/CAM software, as used in the NIPS system, has far more functions than necessary for the purpose of 3270 emulation. BTAM/CAM is imbedded in a package called CICS TPMON SIMULATION PROGRAM. This software is started just after CICS initialization and just prior to CICS receiving control to start scanning terminal lines for input. It is desirable to reduce the CTSP code to the minimum necessary for startup, message storing, and BTAM/CAM communication.

RESPONSIBLE AREA: OLSB
TIME TO COMPLETE: 3-4 WEEKS
START DATE: 5 JANUARY, 1981
COMPLETION DATE: 2 FEBRUARY, 1981

Develop code within BTAM/CAM to convert 3270 data streams to CCL for processing by OSCAM. A VSAM RELATIVE RECORD DATA SET will be used for a scratch pad facility for reconstructing input data streams.

RESPONSIBLE AREA: OLSB
TIME TO COMPLETE: 5-6 WEEKS
START DATE: 19 JANUARY, 1981
COMPLETION DATE: 20 MARCH, 1981

Develop a version of CAM to communicate with the DELTA DATA 7260 terminal in a native fashion under MVS. This version needs the following functions implemented in CCL to emulate the IBM 3270 display characteristics and satisfy the data requirements in the ALLSTAR application programs.

- Define PF key/PF emit
- Define split
- Inhibit/Enable keyboard

- Password suppression
- Clear split/memory
- First page
- Set video attributes
- Set/Unset Format mode
- Set unprotected field highlighting
- Write to field
- Suppress trailing spaces
- Read modified
- Position cursor to field
- Receive cursor position on read
- Locate hold command for positioning the cursor prior to defining a protected or unprotected field in format mode
- Receive a descriptor character representing the interrupt key that was depressed by the terminal operator (ie PF, ATTN, ENTER, etc)

RESPONSIBLE AREA: ISB

TIME TO COMPLETE: 4 WEEKS

START DATE: 12 JANUARY, 1981

COMPLETION DATE: 13 FEBRUARY, 1981

REQUIREMENTS FOR DEVELOPMENT

There are three items necessary for development and testing of 3270 emulation on DELTA DATA 7260. First, a test version of ALLSTAR for SPD use. Second, a pair of 7260 terminals, physically close together, both connected to a non-CNS COMTEN for testing the 3270 data stream conversion code in an isolated manner under VM. Third, a new version of CAM for use with the BTAM/CAM software in the test ALLSTAR system under MVS.

RESTRICTIONS

It should be noted that the architecture of BTAM/CAM is such that there is an MVS attached task for each DELTA DATA terminal defined to the online system. This poses a potential performance problem to that online system. The problem lies in the amount of MVS overhead involved in scheduling/dispatching of these tasks. The actual number of DELTA DATA terminals allowable prior to reaching an unacceptable level of performance, alias poor overall response time is not known. It is our recommendation that there be a second phase to this project which would include a redesign of the BTAM/CAM interface such that it becomes an integral part of CICS. In that way there would be only one MVS task in the region concerned with communicating with the DELTA DATA 7260 terminals. This probably should coincide with those development projects that are designed to use the full, native functions of the agency standard terminal.